Determination of Bacterial Contamination Rate of Endoscopes, Colonoscopes, and Personals of Endoscopy and Colonoscopy Units in a Hospital in Tehran, Iran

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Background & Objectives: Gastrointestinal endoscopy and colonoscopy units are suspected as sources of infections in the hospitalized patients in developing countries. This study was aimed to investigate bacterial contamination of endoscopes, colonoscopes, and other devices of these units and personals in contact with them during the endoscopy or colonoscopy process.

Methods:107 samples were obtained from staffs of endoscopy unit (SEU) and gastroenterological related equipments (endoscope, colonoscope, and other related equipments) between February 2011 and September 2012. Standard swab cultureMethods wasused in all of the experiments.The swabs were immediately streaked onto Blood agar and MacConkey agar. Identification of each bacterial isolate and their colony counts were determined according to standard methods.

Results: Most frequent bacteria among the SEU and gastroenterological imaging related equipments were included, *S. aureus* (16.6 % and 5.6 %); *Entrococcus spp*. (0 % and 4.2%); *S. epidermidis* (33.25 % and 11.26 %), *S. saprophyticus* (0% and 1.4 %); *Bacillus spp*. (20.8 % and 29.57 %); Pseudomonas spp. (0% and 7 %), and *C. difficile* (0% and 5.6 %). *Bacillus spp*. (31.2 %), *Pseudomonas spp*. (15.6 %), *C. difficile* (12.5 %), and *S. epidermidis* (6.2 %) were most frequent identified bacteria among the colonoscopes and endoscopes' samples.

Conclusion: Gram positive bacteria were present more frequently in samples of gastroenterology staffs and endoscopic devices, similarity. Contamination of the devices with spores of *Clostridium difficile* and *Bacillus spp*. or biofilm producing bacteria (e.g. *Pseudomonas aeruginosa, Staphylococcus spp.* and *Enterococcus spp*.) proposed ineffectiveness of the sterilizing process for these equipments or involvement of SEU on transmission of these bacteria. Molecular typing of the isolates will confirm these associations.

Keywords: Nosocomial Infections; Gastroenterology Unit; Colonoscope and Endoscope; Health Care Staffs